IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A fuel monitoring system for use in a transportation system, the fuel monitoring system comprising:

a fuel leak detector comprising,

a colorimetric chemical monitor configured to change color in response to presence of a fuel, ~~the colorimetric chemical monitor corresponding to a fixed surface of a substrate,~~ and

an optical reader configured to monitor a color of the colorimetric chemical monitor based on an intensity of reflected light from the colorimetric chemical monitor, the reflected light corresponding to two light paths; and

an alarm system in electronic communication with the fuel leak detector and configured to provide an alarm when a color of the chemical monitor changes by a predetermined amount.

2. (Original) The system of claim 1 wherein the colorimetric chemical monitor comprises a porous substrate impregnated with mercurous chloride/methylcellulose reagent.

3. (Original) The system of claim 1 wherein a portion of the porous substrate is impregnated with N-phenylanthranilic acid/titanium dioxide.

4. (Original) The system of claim 3 wherein a second portion of the porous substrate is impregnated with mercurous chloride/methylcellulose reagent.

5. (Original) The system of claim 2 wherein the porous substrate comprises paper.

6. (Original) The system of claim 1 wherein the optical reader comprises:

a light source configured to illuminate a surface of a porous substrate impregnated with a reagent reactive with a hypergolic fuel component; and

an optical detector configured to receive light reflected by the surface of the porous substrate, and in response output a voltage proportional to an intensity of the reflected light.

7. (Original) The system of claim 6 wherein the light source comprises a light emitting diode configured to emit light having a wavelength of about 455 nm.

8. (Original) The system of claim 6 wherein the optical reader further comprises a comparator, the comparator comprising:

a first input node configured to electrically communicate with the optical detector,

a second input node configured to electrically communicate with a reference voltage, the reference voltage corresponding to a voltage output by the optical detector receiving light reflected from the porous substrate in the absence of a hypergolic fuel component, and

an output node configured to output a voltage proportional to a difference between voltages at the first and second input nodes.

9. (Original) The system of claim 8 wherein the alarm is configured to be triggered when the output voltage appearing on the output node of the comparator exceeds a threshold value.

10. (Original) The system of claim 8 further comprising a beam splitter configured to cause light from the source to illuminate separate portions of the porous substrate.

11. (Currently Amended) A method for detecting leakage of a hypergolic fuel system, the method comprising:

providing a colorimetric chemical monitor~~, the colorimetric chemical monitor corresponding to a fixed surface of a substrate~~;

providing an optical reader;

monitoring an intensity of reflected light from the colorimetric chemical monitor with the optical reader, the reflected light corresponding to two light paths; and

determining a fuel leak when the intensity of reflected below a predetermined threshold.

12. (Original) The method of claim 11 wherein providing a colorimetric chemical monitor comprises impregnating a porous substrate with mercurous chloride/methylcellulose reagent.

13. (Original) The method of claim 11 wherein providing a colorimetric chemical monitor comprises impregnating a porous substrate with N-phenylanthranilic acid/titanium dioxide reagent.

14. (Original) The method of claim 11 wherein providing a colorimetric chemical monitor comprises:

impregnating a first portion of a porous substrate with mercurous chloride/methylcellulose reagent; and

impregnating a second portion of the porous substrate with N-phenylanthranilic acid/titanium dioxide reagent.

15. (Original) The method of claim 14 wherein impregnating a porous substrate comprises impregnating a porous substrate comprising paper.

16. (Original) The method of claim 11 wherein providing an optical reader comprises:

providing a light source configured to illuminate a surface of a porous substrate impregnated with a reagent reactive with a hypergolic fuel component; and

providing an optical detector configured to receive the light reflected by the surface of the porous substrate and in response to output a voltage proportional to the intensity of the reflected light.

17. (Original) The method of claim 16 wherein providing a light source comprises providing a light emitting diode configured to emit light having a wavelength of about 455 nm.

18. (Original) The method of claim 16 wherein determining a fuel leak when the intensity of reflected light drops below a predetermined threshold comprises:

providing a reference voltage to a first input node of a comparator, the reference voltage corresponding to a voltage resulting from the detector reflecting light in the absence of the hypergolic fuel component;

providing the output voltage from the optical detector to a second input node of a comparator; and

measuring a voltage produced at an output node of the comparator.

19. (Original) The method of claim 11 further comprising generating an alarm when a fuel leak is determined.

20. (Withdrawn) A method of identifying a fuel leak comprising:

generating a voltage based upon comparison of a reference voltage with a voltage generated by a detector receiving light reflected from the surface of a substrate impregnated with a reagent reactive with a fuel component.